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Decades not lost, but won: increased employment, higher wages, and more equal opportunities in the Japanese labour market

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Abstract

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Keywords: Economics of Gender, Labour Force and Employment, Wage Differentials (JEL classifications J16, J21, J31)

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1. Introduction

Wage inequality in advanced economies has increased in recent years and has become an important issue in public discourse due its socio-economic impact (Antonczyk et al. 2010; Chusseau and Dumont 2012). One dimension of these developments is the perceived decline of standard or regular full-time employment relative to the growth of non-regular or atypical employment, i.e., positions that are either not full-time and/or not permanent, and therefore generally less well paid, less stable and less likely to include social security benefits (Beck 1992; Bernardt and Marcotte 2000; Appelbaum 2002; Diekmann and Jann 2005; Hevenstone 2008; OECD 2009; JILPT 2011). A second dimension is the hotly debated gender gap. Where both dimensions increasingly intersect, the compound effect on women in non-regular employment is seen as epitomizing a trend to greater wage inequality. A third dimension is inter-generational inequality, with increasing numbers of young adults unable to make their way into standard employment.

Japan is no exception to the trend toward more non-regular employment. The OECD (2009: 87) observes a "particularly strong expansion of non-standard forms of employment." According to the Japanese Ministry of Health, Labour, and Welfare (MHLW), the share of non-standard employment (part-time, temporary, and contract employees, as well as day labourers) has risen from 15.4% to 30.0% between 1985 and 2010 (MHLW 2012a). Observers label this development "the most important change in the Japanese labour market" (Keizer 2008: 411). With 2013 figures indicating that Japan has the second largest gender wage gap in the OECD, concerns abound regarding the development of the Japanese labour market over the last two decades.[2]

In light of this development, academic assessments of labour market outcomes in Japan have been overwhelmingly negative. The de-standardization of work is blamed for creating economic and social gaps between groups of employees, since individuals in non-standard employment face less favourable conditions in terms of social security, hourly wages, bonuses, retirement benefits, and contract period (Yamagami 2006; Weathers 2009; Fu 2011). According to Song (2010), the rapidly expanded practice of hiring non-regular employees was fostered through a number of regulatory changes in the Japanese labour market during the 1990s and 2000s.

With regard to the second dimension, Shire and Imai (2000), Weathers (2001), Macnaughtan (2006), and Yamada (2009), point to a continuing and intensifying gender bias in the labour market. Although female labour market participation is increasing, the high percentage of non-standard female employees throughout all age groups further consolidates the inferior position of women in the Japanese labour market and in the social welfare system. For Katō and Kambayashi (2013), Japanese women have lost what they gained during the decade preceding the economic stagnation of the 1990s, namely the inroads made into the primary segment of the labour market. Between 1982 and 1992, the proportion of female standard employees on indefinite contracts increased from 23.8% to 26.6%, but fell to 22.1% between 1992 and 2002.

2 "OECD Family database, 2. Labour Market position of families (LMF) 5. Gender pay gaps for full-time workers and earnings by educational attainment", www.oecd.org/els/soc/LMF1.5%20Gender%20pay%20gaps%20for%20full%20time%20workers%20-%20updated%20290712.pdf (15.06.2014).

As for intergenerational inequality, Imai (2004) finds that replacing standard with non-standard workers is taking place as "an inter-generational project in which older standard workers are replaced with younger non-standard workers". Ishiguro (2008) points out that the ratio of non-standard employment is especially high for the cohorts aged 15 to 19 and 20 to 24 and warns that, given the characteristics of the Japanese employment system, the chances that younger generations in non-standard employment will upgrade into standard employment are low.

In contrast, very few studies have identified normatively positive evidence on the phenomenon of atypical employment. For instance, Satō (2001) finds that a large majority of individuals in non-regular employment has deliberately chosen this type of employment for reasons such as more flexible working hours. Using data from a 1996 government survey he finds that only 25% of young part-timers and dispatch personnel would have preferred another work arrangement; the figure is as low as 10% for married women and elderly part-timers.

Thus, an almost perfect consensus of academic and public opinion points to an overall negative development of the Japanese labour market over the past two decades. However, there are two general observations that contradict the idea of "two decades lost in the labour market" from the perspective of economic theory. Firstly, unemployment in Japan has remained very low as compared to most other advanced economies.[3] This suggests that labour demand was hardly ever short of labour supply; on the contrary, a number of sectors should have seen supply falling short of demand, namely in small- and medium-sized manufacturing enterprises. It seems, therefore, difficult to imagine how Japanese employers could have realized a "de-standardization" on an aggregate scale. Secondly, where gender wage gaps allow for purchasing the same level of productivity at lower wages, female employment should have increased strongly, possibly even at the expense of men.

In our view, three questions are key to a complete assessment of labour market performance in Japan. Firstly, taking men and women together, is there proof for the claim that regular employment was replaced by non-regular employment on an aggregate level in general, and at the expense of younger generations in particular (Imai 2004)? Secondly, how do today's labour market outcomes compare to the heydays of the Japanese economy; i.e., to the late 1980s in terms of absolute numbers of employees? Thirdly, have wage gaps in the first two dimensions (gender and standard vs. non-standard employment) actually increased, stayed the same, or have they even shrunk? This last question is key to determining whether the increase in non-regular employment was predominantly due to a shift in labour supply, as is frequently alleged, or rather due to a shift in labour demand.

For our analyses we have set the investigation period to 1988 to 2010. The time frame chosen comes with two specific advantages. First, covering a time span of more than two decades allows for identifying secular trends. Second, relying on 1988 and 2010 as start- and endpoints also helps to ensure that no outliers distort the overall picture in this longitudinal analysis. For instance, an analysis referencing 1997 as the end-point of

3 "Labour Force Survey, Monthly results" http://www.stat.go.jp/english/data/roudou/results/month/index.htm (15.06.2014)

an exceptional economic phase characterized by over-hiring[4], namely the bubble economy, would not only be too short for making inferences on long-term developments, but would also strongly distort results. For the convenience of readers interested in specific periods within the investigation period, the authors have tried to provide annual figures wherever possible.

In our search for answers to our three questions, we proceed as follows. In section 2, we discuss the results of previous studies where relevant insights are provided. Next, section 3 draws on government data to look at how the absolute numbers for employment have developed over the past two decades (section 3.1). Taking into consideration changes in the size of the active population aged 15-64, we then compare 2010 labour market outcomes with a 1988 projection that keeps our two dimensions of gender and standard vs. non-standard employment constant (section 3.2). In both sections, we rely on separate analyses along the two dimensions, as this allows for determining whether regular employment in Japan was substituted with non-regular employment, or whether non-regular employment simply outgrew regular employment. As a third dimension, we then propose an analysis of intergenerational effects in order to gather evidence for the alleged particular hardships among Japanese youth (Ishiguro 2008) and among younger men (Brinton 2011). Finally, section 4 attempts to shed light on real wage development in order to determine how wage gaps have changed during the investigation period; and thus to understand the predominant cause for the surge in non-regular employment.

2. Previous studies and research objective

We divide previous studies on the shift to non-regular employment into two groups: first, studies that inquire into the nature of the relationship between regular and non-regular employment, and second, studies that analyse the reasons behind the shift to non-regular employment.

To the authors' best knowledge, there is only one study that has tried to capture overall labour market development by focusing on the question of whether the long-term recession since the 1990s resulted in "good jobs" (characterized by high wages and benefits, job security, opportunity for training and development) being replaced by "bad jobs" (characterized by the lack of these attributes; Katō and Kambayashi 2013). Contrary to popular belief, they show that there has not been a secular trend toward non-standard male employment in Japan. Overall, female employment has undergone a compositional change from self-employment to non-standard employment (i.e., from "bad jobs" to "bad jobs" rather than a shift from "good jobs" to "bad jobs"). In the case of young Japanese workers, especially young women, however, they find evidence for a shift of "good jobs" to "bad jobs". Yet, as the authors rely on relative measures in presenting their findings, they do not provide a basis for answers on whether standard employment has been replaced by non-standard employment in an aggregate perspective.

A number of studies have approached the question of substitution vs. employment expansion from an industry perspective. For instance, Ono (2001) analyses how the use of non-regular employment changed over the years 1989-1999 at two operators of large retail chains. She finds that the two chains increasingly

4 As data from the Ministry of Health, Labour and Welfare (MHLW 2012a) reveals, companies continued to hire constant or increasing numbers of regular employees up to 1997.

made use of non-regular employees. The share of non-regular employees at chain 1 increased from about 65% to 75%, while that at chain 2 rose from 55% to about 77%. At both chains this increase came at the expense of regular employees. For the same industry, Miyamoto and Nakata (2002) analyse panel data of eleven large department store operators and ten large supermarket operators with more than 1'000 employees between 1987 and 1999. While they also find that standard employment was partially replaced by non-standard employment, they were able to show that an increasing ratio of non-standard employment actually mitigated further downsizing of standard employment.

Yamaguchi (2011) uses microdata from companies listed on Section 1 of the Tokyo Stock Exchange for the years 2005 and 2006. He concludes that regular and non-regular employment in his sample of large and very large companies entertain a substitutive relationship. However, compared to 2005, the elasticity of substitution decreases in 2006, indicating that fewer regular employees were replaced by non-regular employees. In 2005, a substitutive relationship can be found for the manufacturing, retail, service, construction, and transportation industries, while in 2006, it was limited to the retail, service, and construction industries. While the study offers interesting insights, it does not lend itself to explaining either more long-term or more general developments in the Japanese labour market, due to its sample being subject to a twofold selection effect[5].

Using a representative sample of employer level microdata from the *Koyō Dōkō Chōsa* (Survey on Employment Trends; Ministry of Health, Labour, and Welfare), Ishihara and Genda (2003) focus on the relationship between part-time and full-time employment on the micro level between 1991 and 2000. They find that only 3% to 6% of all companies increased their use of part-time employees while reducing regular employment. They further report that only about half of all companies make use of part-time employees, and that companies with fewer than 30 employees tend to employ fewer part-time employees than larger ones. They also find that throughout the 1990s, the largest losses of full-time employment were seen at companies that made no use of part-time employees at all. What is more, full-time employment was increasingly lost at companies in which part-time employment was also reduced. Relying on data from the same survey, Ishihara (2004) investigates the relationship between full-time and part-time employment between 1991 and 2000. She finds that an increase in part-time employment did not happen at the expense of full-time employment in over 80% of the cases where full-time employment was lost, and that in over 50% of the cases where part-time employment was increased, it was done regardless of whether full-time employment was reduced or not. Finally, Hara (2003) finds similar results using company-level data from the 1998 *Kigyō No Fukuri Kōsei Seido Ni Kansuru Chōsa* (Survey of Company Social Welfare Programs; Japan Institute of Life Insurance). While her study covers only the first of the two "lost decades", her findings clearly point to a complementary relationship.

To sum up, existing research has found mixed evidence on the question of whether standard employment was replaced by non-standard employment or not. Yet, most of the more representative studies using microdata (Miyamoto and Nakata 2002; Ishihara and Genda 2003; Hara 2003) point to a complementary

5 Their sample singles out companies that are large and publicly listed at the same time.

relationship. Contradictory evidence in the studies of Ono and Yamaguchi (2001; 2011) was based on weak methodology. However, neither of these works allows for directly drawing conclusions regarding the extent and segments of the labour market that have seen employment expansion over the last two decades. To shed full light on the topic, an analysis of aggregate employment data for the entire period spanning the "two lost decades" (section 3) is indispensable.

But what are the reasons for the relative shift to non-regular employment? At its heart, the quest for the causes of this development is reduced to the interplay of labour demand (by employers) and labour supply (by employees) in a dual labour market (standard vs. non-standard employment). While inconclusive regarding the primary causes (changes in demand or in supply), the existing literature abounds with hypothetical reasons. Demand side factors such as the intensified competition Japanese companies find themselves entrenched in, slower economic growth (Farber 2007), changes in industrial structure toward a higher share of the tertiary sector (Ishiguro 2008), the adoption of neo-liberal policies, the increased spread of information technology (Suzuki et al. 2010), changes in institutional setting and the behaviour of companies, i.e., the collapse of the "Japanese employment system" (Suzuki et al. 2010) can be found as purported reasons, just as supply side factors like a growing necessity to supplement household income through female part-time employment (Kawata and Naganuma, 2010), government policy encouraging women to work on a part-time basis and people's diverse working preferences (Ishiguro 2008; Yamada 2011), as well as increased individualization of career design and life plan (Suzuki et. al. 2010) have been suggested.

Interestingly, changing patterns of the latter (labour supply) are frequently considered more important factors than change of the former. Unfortunately, the literature falls short of providing a clear-cut link to wage developments in the respective segments. However, a first clue to this inter-relationship can be found in a study of Hayami and Matsuura (2001), which computed the elasticity of substitution between full-time and part-time workers using macro time series from 1982 to 1997. They find elasticity of substitution of 5.32 for the manufacturing industry, and 5.87 for the non-manufacturing industries. This means that a 1% change in relative wages (i.e., the wage gap) results in a 5 to 6% change in the relative employment ratio between full-time and part-time employment, implying that a small change in relative wages leads to large substitution effects. From this we can note that an increase in the wage gap between regular and non-regular employment suggests an increase in the rate of substitution between the two types of employment. Consequently, an analysis of the development of wage gaps during the "lost decades" (section 4) is needed to understand whether supply side factors (widening gap), or demand side factors (closing gap) were the primary cause for the relative shift toward non-standard employment.

3. Structural change in the Japanese labour market

We start in section 3.1 by analysing labour force participation rates and the relative share and absolute numbers of standard and non-standard employment, overall and by sex, in order to obtain an understanding of the magnitude of changes in the structural parameters of the Japanese labour market. Findings obtained from this analysis will help to evaluate the absorptive capacity of the labour market in section 3.2.

Subsequently, in section 3.3 we aim at evidencing changes for specific groups that are frequently referred to both in the literature, and in public discourse. To that end, we provide a detailed analysis by age-cohorts and by sex.

Basing our study on macro data obtained from the *Labour Force Survey* will likely provoke two specific objections. First, the choice of macro data might not seem entirely appropriate. Yet, this methodological choice was guided by the observation that the on-going discussion seems to lack a solid base that would allow for putting into perspective the many individual findings obtained from studies on particular aspects of the labour market such as the gender gap, or developments in certain industries.
Second, critics might object that government statistics do not appropriately reflect the 1998 change in labour laws that has led to counting employees with fixed-term contracts of more than one year as regular employees. The share of individuals concerned, however, is minuscule: the proportion of standard employees (both sexes) with fixed-term contracts as a percentage of the population aged 18-70 declined from 0.5% in 1982 to 0.2% in 2007. When analysed by sex for the same time frame, the proportion of male employees was reduced from 0.6% to 0.3%, and that of female employees from 0.3% to 0.1% (Katō and Kambayashi 2013).

3.1 A matter of perspective: relative and absolute measures of regular and non-regular employment

Between 1988 and 2010 the share of regular employees has declined from 83.3% to 69.9% for the active population aged 15-64, while the corresponding share of non-standard employment has increased from 16.7% to 30.1%. When analysed by sex, the share of men in non-standard employment has increased from 6.8% in 1988 to 14.4%, while that of women has risen from 33.9% to 50.9%. At first sight, these figures appear to match with the negative public perception and with most existing research on the structural development of the Japanese labour market.

An analysis of absolute employment numbers for individuals aged 15-64, however, yields a more differentiated picture. Between 1988 and 2010, the total number of employees increased from 43.2 million to 51.7 million (+8.5 million / +19.7%). A very large share of this increase consists of non-standard employees: the number of non-standard employees rose by 8.4 million, from 7.2 million to 15.6 million, which corresponds to an increase of 115.8%. While this seems to confirm the trend towards a de-standardisation of work in the Japanese labour market, the fact that the number of regular employees also slightly increased in the same time frame, from 36.0 million to 36.1 million (+0.1 million / +0.4%), is frequently ignored and leads to a first important implication: on an aggregated basis, no standard employment has been replaced with non-standard employment (compare Table 1).

Conducting the same analysis separately by sex yields further insightful results. The total number of male employees aged 15-64 increased from 27.4 million to 29.4 million (+2.0 million / +7.6%). With non-standard positions accounting for more than the total of this increase (+2.4 million / +127.3%), this leaves a negative margin to the number of regular male employees (-0.3 million / -1.2%). While the increase in the number of female employees from 15.8 million to 22.2 million (+6.4 million / +40.6%) shows a similar pattern, with the

number of non-regular employees rising from 5.4 million to 11.3 million (+5.9 million / +111.2%), the increase in the number of regular female employees from 10.5 million to 10.9 million (+0.4 million / +4.4%) occurred with a considerable positive margin. Putting this evidence together, we can argue that not only were all regular jobs newly created between 1988 and 2010 obtained by women, but also, that women have succeeded in making inroads into male standard employment. In light of the critical discussion on the role and position of female employees in the Japanese labour market, this is a rather surprising result. Compare Table 1 for the corresponding data.

Table 1: Regular and non-regular employees aged 15-64 (in millions), 1988-2010, total and by sex

	Total employees (aged 15-64)	*Thereof regular employees*	*Thereof non-regular employees*	Regular employees in % of total employees	Non-regular employees in % of total employees
1988	43.2	*36.0*	*7.2*	83.3%	16.7%
2010	51.7	*36.1*	*15.6*	69.9%	30.1%
	Male employees (aged 15-64)				
1988	27.4	*25.5*	*1.9*	93.2%	6.8%
2010	29.4	*25.2*	*4.3*	85.6%	14.4%
	Female employees (aged 15-64)				
1988	15.8	*10.5*	*5.4*	66.1%	33.9%
2010	22.2	*10.9*	*11.3*	49.1%	50.9%

Source: Based on MHLW (2012a); Note: Table may contain rounding errors.[6]

Naturally, an analysis of absolute employment numbers cannot go without taking account of changes in the overall population. Between 1988 and 2010, the Japanese population aged 15-64 decreased from 85.0 to 81.7 million (-3.9%). If we now combine these figures with the above findings on absolute employment numbers, we can see that the decrease in the population aged 15-64 of -3.9% stands in stark contrast to the increase in the number of employees (+19.7%). This translates into a strong increase in the country's employment ratio (+12.4pp). The same also holds true when analysed separately by sex: The number of male employees increased by 7.6% despite a 3.3% decrease in the male population aged 15-64, translating into a 7.2pp increase in the male employment ratio. The number of female employees increased by as much as 40.6%, despite a 4.4% decrease in the female population aged 15-64; hence, the female employment ratio increased by a hefty 17.5pp (compare Table 2).

[6] Rounding errors occur when rounded-off values are used instead of exact mathematical values. For instance, in Table 2, 2010 rounded values for men in regular employment (25.2 million) and non-regular employment (4.3 million) would add up to a larger total (29.5 million) than the equally rounded value displayed (29.4 million).

Table 2: Population and employed persons aged 15-64 (millions), employment ratios (%)

Source: Own calculations based on data from the Statistics Bureau Japan, Historical Statistics, Chapter 2 (Population and Households), Table 2-3, and on MHLW (2012a); Note: Table may contain rounding errors.

	1988			2010			Change 1988-2010 (in %)		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
Population	85.0	42.5	42.5	81.7	41.1	40.6	-3.9	-3.3	-4.4
Employed persons	43.2	27.4	15.8	51.7	29.4	22.2	+19.7	+7.6	+40.6
standard	*36.0*	*25.5*	*10.5*	*36.1*	*25.2*	*10.9*	+0.4	-1.2	+4.4
non-standard	*7.2*	*1.9*	*5.4*	*15.6*	*4.3*	*11.3*	+115.8	+127.3	+111.2
Employment ratio	50.8	64.3	37.2	63.2	71.6	54.7			

To summarize, the Japanese labour market has accommodated 8.5 million new employees aged 15-64 by creating 8.4 million non-regular jobs and 0.1 million regular jobs between 1988 and 2010. On an aggregated basis, no standard employment was replaced with non-standard employment. Of the 8.5 million newly created jobs, 6.4 million went to women. Although only 0.4 million out of the 6.4 million new jobs for women are in standard employment, these 0.4 million equal 400% of the net increase in standard employment of 0.1 million, i.e., women have secured more regular employment at the expense of men. The question of which group(s) of women gained regular employment at the expense of which group(s) of men will be dealt with in section 3.2.2.

3.2 Job creation capability of the Japanese labour market 1988 to 2010

We further assess the performance of the Japanese labour market in terms of job creation capability by calculating how many employees the Japanese labour market would have had to accommodate by 2010 if

- Employment ratios (number of employees relative to active population), and
- Shares of standard vs. non-standard employment

had remained constant at the 1988 level for men and women aged 15-64. Comparing the results of this model with the actual 2010 figures will allow us to assess the absorptive capacity of the Japanese labour market during the investigation period.

Labelled as “Model 1988”, Table 3 lists the numbers of regular and non-regular jobs for men and women that were to be expected if both employment ratios and the ratios of standard and non-standard employment had stayed constant between 1988 and 2010. Calculating the differences to the actual figures as shown above in Table 4, we understand that 10.1 million more jobs have been created than were to be expected from a 1988 perspective, given the labour market structure at that time.

Table 3: "Model 1988" versus 2010 actual figures (millions)

„Model 1988": (Employment ratio and share of standard employment kept constant at 1988 level)	**2010**			**Differences 2010 actual**		
	Total	Male	Female	Total	Male	Female
Employment (million)	41.6	26.5	11.1	+10.1	+3.0	+7.1
standard	34.6	24.7	10.0	+1.4	+0.5	+0.9
non-standard	6.9	1.8	5.1	+8.6	+2.4	+6.2

Source: Own calculations based on data from the Statistics Bureau Japan, Historical Statistics, Chapter 2 (Population and Households), Table 2-3, and on MHLW (2012a); Note: Population aged 15-64; table may contain rounding errors.

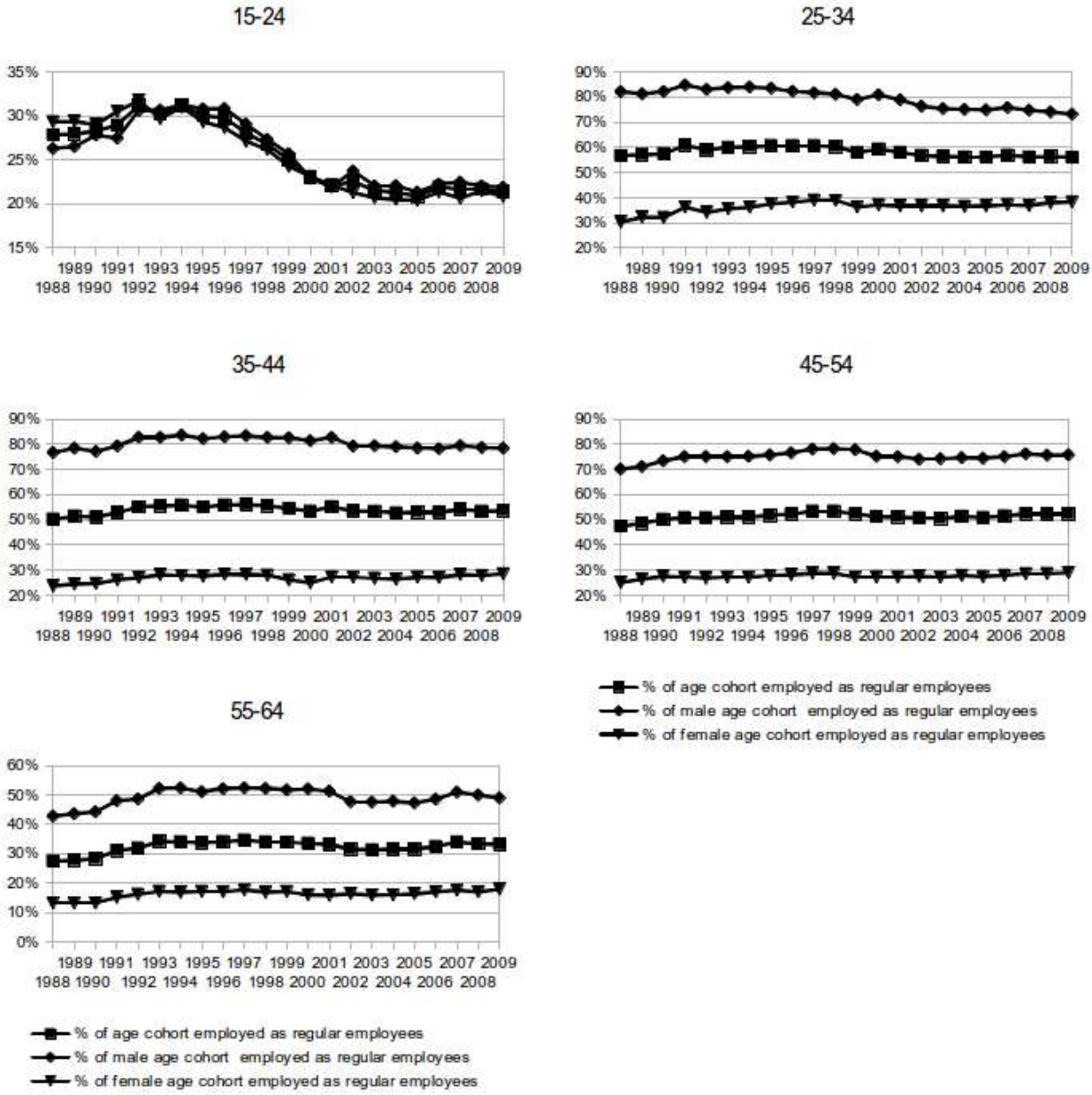
What is more, and most surprisingly, 1.4 million of the jobs created beyond the 1988 model are jobs in standard full-time employment. When analysed by sex, the Japanese labour market created 0.5 million more regular jobs for men, and 0.9 million more regular jobs for women, confirming the increasing inroads of women into the Japanese labour market.

3.3 Intergenerational inequality? – Standard employment by age cohorts, 1988 to 2010

The results obtained in sections 3.1 and 3.2, however, do not provide evidence on the extent of inter-generational effects, namely on the reported difficulties of middle/high school graduates and university graduates to find permanent employment, nor do they reveal the characteristics of those women who have made inroads into the Japanese labour market. Therefore, we now propose to analyse the development of the share of standard employment for different age cohorts during the time period 1988 to 2009. Note that we do *not* analyse the share of standard employment relative to the labour force for two reasons. First, the labour force is sensitive to business cycles, while age cohorts are not. Second, the definition and thus the size of the labour force can change, complicating the analysis of long-term trends or rendering them altogether impossible to identify.

As can be inferred from Figure 1 and Annex 1, a substantial decline in the share of standard employment can only be observed within the age cohorts of (a) 15 to 24 years for both sexes, and of (b) 25 to 34 years for men.

Figure 1: Share of standard employment by age cohorts, 1988-2009



Source: Own calculations based on data from the Statistics Bureau Japan, Historical Statistics, Chapter 2 (Population and Households), Table 2-3, and MHLW (2012a).

The finding of a decreasing share in standard employment, noted as (a) and (b) above, seems to corroborate the claims of a "lost generation" - and hence, of poor labour market performance. As they obviously mark exceptions to a general trend, we will enquire into the two cases in more detail.

3.3.1 Disadvantaged Japanese youth?

According to Suzuki et al. (2010), the employment gap among young workers started to expand around the year 2000. Companies cut back on hiring new regular recruits, but instead hired more non-regular workers. Itō (2012) worries about the social consequences if increasing numbers of young workers are stuck in non-

regular employment with little opportunity to grow, either in terms of skills or wages.

The claim of an increasingly disadvantaged youth, however, is not supported when employment numbers of the age cohort 15 to 24 are analysed: the absolute number of 15-24 year-old non-regular employees decreased from 2.59 million in 2002 to 2.23 million in 2010 (-13.9%) (compare Table 5). When expressed as a percentage of the corresponding age-cohort, in 2002 17.0% of the 15-24 year-olds were employed as non-regular employees, and 17.7% in 2010 (compare Table 4). Since 2002, the data on non-regular employees distinguishes two groups: non-regular employees including persons attending school, to whom the above numbers refer, and non-regular employees excluding persons attending school. The numbers reveal that in 2002, 45% of the non-regular employees in this age bracket were students in tertiary education, i.e., working part-time while attending school. This figure rose to 50% in 2010. Now, this means that the absolute number of non-regular employees between 15 and 24 years who are not concurrently attending school decreased from 9.3% in 2002 to 8.9% in 2010 (Table 4). Before this background we understand that two factors can be held responsible for the decrease in the number and share of regular employees within this age cohort (Figure 1). First, the decrease in the share of regular employees within the respective age cohort of 15 to 24 can be accounted for by a corresponding increase in the average time spent in education. Young Japanese have been continuously enjoying ever higher standards of education over the last 25 years; this can be inferred from the increasing advancement rates between high school and university, which increased by 17pp for both sexes, by 12pp for male students, and by a hefty 23pp for female students between 1985 and 2010 (Statistics Bureau of Japan, Historical Statistics 25-12 “Enrolment Advancement Rates (1948-2005)” http://www.stat.go.jp/english/data/chouki/25.htm). Second, while the overall development was positive, certain low-skilled youths (middle/high-school graduates) have increasingly faced difficulties in their transition from school to work. Genda et al. (2010) found that the worse labour market conditions were at entry, the lower was the ratio of regular employees among less well-educated Japanese men, i.e., male high-school graduates. This finding, i.e., that difficulties in the transition between high-school and workplace have increased for young Japanese males, accords with the insights of Brinton (2011), who conducted in-depth interviews with a sample of male high-school students who had finished school in the depth of the Japanese recession and faced considerable difficulties in the transition from school to work. The same applies to young women with a junior and senior high-school education, for whom it has also become less likely to find standard employment, as demonstrated by Abe (2010). With this, we understand how increasing educational levels – on the one hand – allow for explaining a seeming increase of non-regular employment, and – on the other hand – create increasing competition on the labour market for low-skilled entrants.

Table 4: Share of age cohort 15–24 employed as non-regular employees

(age cohorts in 10'000 persons)

	Age cohort 15 – 24	15-24 (including persons attending school)					
		Non-regular staff	Part-time worker	*Arbeit* (temporary worker)	Dispatched worker from temporary	Contract employee or entrusted	Other
2002	1521	17.03%	2.37%	12.23%	0.33%	1.45%	0.66%
2003	1486	17.43%	2.56%	12.12%	0.40%	1.62%	0.74%
2004	1449	17.47%	2.42%	11.74%	0.76%	1.86%	0.62%
2005	1397	18.96%	2.58%	12.45%	1.22%	2.00%	0.72%
2006	1374	18.42%	2.40%	11.94%	1.24%	1.97%	0.87%
2007	1352	18.57%	2.29%	12.57%	1.33%	1.85%	0.59%
2008	1326	18.63%	2.26%	12.14%	1.21%	2.04%	0.98%
2009	1299	17.32%	2.16%	12.08%	0.69%	1.62%	0.77%
2010	1262	17.67%	2.22%	12.76%	0.48%	1.51%	0.71%

	Age cohort 15 – 24	15-24 (excluding persons attending school)					
		Non-regular staff	Part-time worker	*Arbeit* (temporary worker)	Dispatched worker from temporary	Contract employee or entrusted	Other
2002	1521	9.34%	2.17%	4.87%	0.26%	1.45%	0.59%
2003	1486	9.96%	2.29%	5.05%	0.40%	1.55%	0.67%
2004	1449	10.42%	2.14%	5.11%	0.69%	1.79%	0.55%
2005	1397	10.66%	2.36%	4.58%	1.14%	1.93%	0.64%
2006	1374	10.56%	2.18%	4.37%	1.16%	1.97%	0.80%
2007	1352	9.62%	2.00%	4.07%	1.26%	1.78%	0.52%
2008	1326	10.03%	2.11%	3.92%	1.13%	1.96%	0.90%
2009	1299	8.85%	1.92%	4.08%	0.62%	1.54%	0.62%
2010	1262	8.88%	1.90%	4.28%	0.40%	1.51%	0.71%

Source: Own calculations based on Statistics Bureau of Japan, Labour Force Survey, long-time series, Table 10 (http://www.stat.go.jp/data/roudou/longtime/03roudou.htm) and Statistics Bureau of Japan, Population Estimates, long-time series (http://www.e-stat.go.jp/SG1/estat/List.do?bid=000001039703&cycode=0)

Table 5: Absolute numbers of non-regular employees (2002-2012,) in the age cohort 15-24

(in 10'000 persons; annual averages)

	15-24 (including persons attending school)					
	Non-regular staff	Part-time worker	*Arbeit* (temporary worker)	Dispatched worker from temporary	Contract employee or entrusted	Other
2002	259	36	186	5	22	10
2003	259	38	180	6	24	11
2004	253	35	170	11	27	9
2005	265	36	174	17	28	10
2006	253	33	164	17	27	12
2007	251	31	170	18	25	8
2008	247	30	161	16	27	13
2009	225	28	157	9	21	10
2010	223	28	161	6	19	9

	15-24 (excluding persons attending school)					
	Non-regular staff	Part-time worker	*Arbeit* (temporary worker)	Dispatched worker from temporary	Contract employee or entrusted	Other
2002	142	33	74	4	22	9
2003	148	34	75	6	23	10
2004	151	31	74	10	26	8
2005	149	33	64	16	27	9
2006	145	30	60	16	27	11
2007	130	27	55	17	24	7
2008	133	28	52	15	26	12
2009	115	25	53	8	20	8
2010	112	24	54	5	19	9

Source: Own calculations based on Statistics Bureau of Japan, Labour Force Survey, long-time series, Table 10 (http://www.stat.go.jp/data/roudou/longtime/03roudou.htm)

Data on the development of the number of vacancies for university graduates in private industry (Works Institute 2012) sheds additional (normatively positive) light on the job situation for the age bracket of 15-24.

The number of open (regular) positions for university graduates in private industry (all company sizes) increased from 608'000 in 1987 to 725'300 in crisis-struck 2010, and, except for the year 2000, it has always exceeded the number of applicants (259'500 in 1987, 447'000 in 2010). The number of job openings in large firms, which have traditionally been more sought after by university graduates, more than doubled between 1996 and 2010, from 64'500 to 159'700. Rather steep increases took place in 1997 and 1998, when the Japanese economy regained some momentum, and during the economic recovery that started in 2003 and came to a halt in 2009.

This halt was the result of the U.S. real estate crisis following the 2008 Lehman Shock.[7] The ensuing global economic downturn had detrimental effects on those companies in Japan that are typically ranked among the most favoured employers by university graduates: export-driven large companies. As the decline in demand from overseas markets was eventually compounded by a strong appreciation of the Yen from 2010 to 2012 (compare Blind and Lottanti von Mandach 2012), many of these favourite employers sharply curbed or entirely stopped hiring new graduates, even revoking contracts already issued to the class of 2009. Occurrences such as the previously unknown revocation of contracts caused widespread insecurity among the general public, which in recent years has effectively precluded an objective perception of the labour market by young graduates.

3.3.2 Males aged 25 to 34 facing stronger competition for standard employment – by women

As we have just seen, job openings are still outnumbering new graduates by a significant multiple in spite of the strong expansion of tertiary education over the last two decades. With plenty of standard employment available for university graduates despite the 2008 Lehman Shock (Works Institute, 2012), i.e., for well over 40% of every cohort since 2000, and over 50% since 2010 (MEXT, 2013), the outlook should not be too grim for those advancing into the 25-34 age bracket. As can be seen in Annex 1, total standard employment relative to this particular age cohort has almost remained constant with a minor decrease of only 0.6pp (from 56.7% in 1988 to 56.1% in 2009).

We find that male standard employment in the age group of 25-34 decreased significantly by 9.0pp, from 82.2% in 1988 to 73.2% in 2009. However, with the total decrease at less than 1pp, it was a marked increase in female standard employment (by some 8.1pp from 30.3% to 38.4%) that almost entirely compensated for the decline among their male peers. In other words, younger women are increasingly finding their way into standard employment at the expense of young men (compare Annex 1).

If noted at all, the appraisal of this development has been far from positive. First, the advancement of female university graduates at the expense of their male peers has fuelled fears that it will negatively affect the (chronically low) fertility rate in Japan for two reasons: (1) because women are forced to choose either career or family (which Arai and Lechevalier 2005 call the "polarization of choices" for women) and (2), because Japanese men in non-standard employment have (more) difficulties finding a wife and starting a family compared to their peers in standard employment, because they cannot live up to the ideal of the male breadwinner (Mikanagi 2011). While the latter indeed seems to be the case (Miura 2007), with regard to the first reason, and contrary to expectations, female regular employment actually seems to promote rather than discourage marriage, as Nagase (2002) has shown.

Second, female labour market advancement has accentuated inequalities among women, as Tachibanaki (2008) points out. Whether women are hired as regular or non-regular employees, or, in the case of regular employees, whether they are on the management/career track (*sōgō shoku*) or clerical/non-career track

7 Financial services firm Lehman Brothers filed for Chapter 11 bankruptcy protection on September 15, 2008. Lehman's bankruptcy filing is regarded to have played a major role in the unfolding of the 2008 global financial crisis.

(*ippan shoku*) has a significant effect on working conditions, possibilities for promotion, awarding of employee benefits, participation in a social insurance program, and, last but not least, wages. As a matter of fact, the rate of female managers at section head manager-level more than quadrupled between 1982 and 2010, but is still in the single-digit percentage area (1982: 1.4%; 2010: 6.2%; compare http://www.works-i.com/pdf/r_000327-4.pdf). Obviously, much remains to be done.

4. Real wage development 1988-2010: Gaps closing in two dimensions

As we have shown in section 3, recent labour market expansion has been dominated by an increase in non-regular employment, especially in female non-regular employment. This increase is a result of significantly higher labour market participation rates, especially by women. The extant literature frequently attributes this development to factors resulting in a shift in labour supply: first, to the government's ongoing policy of encouraging women to work on a part-time basis (Ishiguro 2008; Yamada 2011), and second, to a growing necessity to supplement household income through female part-time employment (Kawata and Naganuma 2010).

However, earlier evidence for a significant impact of government policies on female labour market participation rates, both in regular and in non-regular employment, e.g., Yamada (2011), should be regarded with some skepticism in the light of more recent research (Steinberg 2012). The second explanation refers to the so-called “household assistance effect” (also known as the “Douglas-Arisawa Law”), stating that the probability of a wife's labour market participation is negatively correlated with the husband's income level. A number of theoretical and empirical analyses demonstrated the validity of this law in the 1960s and 1970s. Later studies on Japan, however, produced mixed results. A most recent panel data analysis of changes in female labour supply in Japan for the period 1993-2008 concludes that the household assistance effect still holds true, even for younger aged cohorts (Kishi 2012). While this might partly explain the increasing numbers of female non-regular employees (Kawata and Naganuma, 2010), it does not, however, explain the increase in male non-regular employment. We reckon that the observed outcome might instead be due to a shift in labour demand for non-regular employees, with rising wages in non-standard employment attracting an increasing number of employees, both male and female. Correspondingly, we provide an in-depth analysis of real wages by age-cohorts and by sex in order to assess how wage gaps between men and women, and between standard and non-standard employment, have developed in the course of the last two decades.

For a start, however, we first look into the development of the aggregate wage share. As it turns out, individuals in dependent employment have succeeded in securing an increasing share of net national income through their wages from about 60% in 1988 to 66% in 2010 (CAO 2012). While this increasing share is arguably due to lower returns on capital investments rather than to successful union bargaining, one can infer from this that Japanese employers have by no means robbed dependently employed individuals of the fruits of their work.

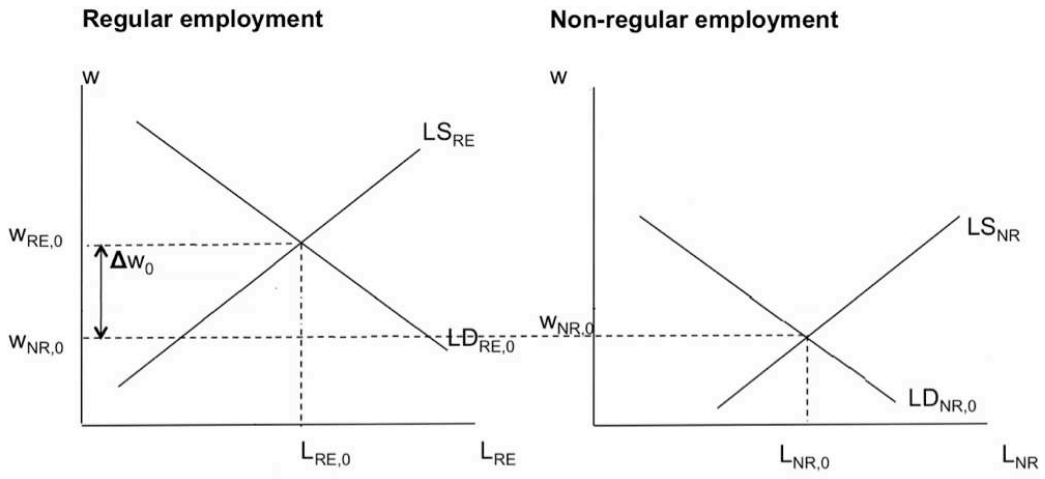
Critics may argue that an ever increasing share of the population is required for reaping the fruit: as we have seen, the employment ratio of individuals aged 15 – 64 has increased by 12.4pp from 50.8% in 1988 to

63.2% in 2010 (Table 2). Equalling a relative increase of 24%, such argument deserves closer inspection. The Japanese Employment Status Survey also provides the sum of total hours worked per year (excluding agriculture): between 1988 and 2010 we can observe a 8.3% decline in total hours worked, substantially more than the 3.9% decrease in the active population aged 15-64. As the decrease in employment in the agricultural sector was certainly even more pronounced, we can safely argue that the fruit can be reaped with less effort nowadays.

We now analyse wage developments of male and female employment, as well as in standard and non-standard employment. While there are naturally many empirical factors that can impact on real wages, such as the deregulation of industries (compare Kawaguchi and Mizuno 2011), we here sketch out the *theoretical* effects of demand and supply shifts to be expected in a dual labour market, because, as we mentioned in our introduction, at the very heart of the relative shift to non-standard employment is the interplay between labour demand (employers) and labour supply (employees) with a clear-cut link to wages.

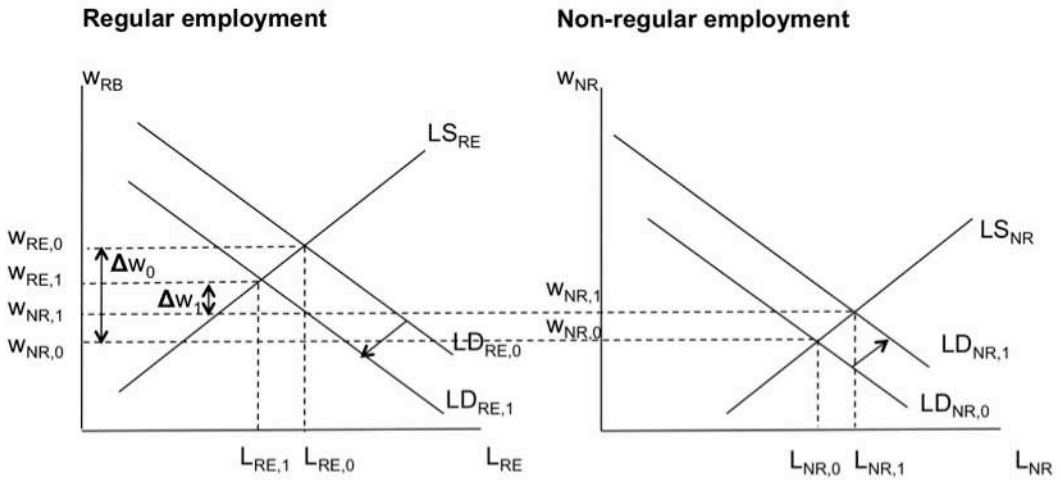
Figure 2a illustrates the wage gap Δw_0 in a dual labour market.

Figure 2a: Wage gap in a dual labour market



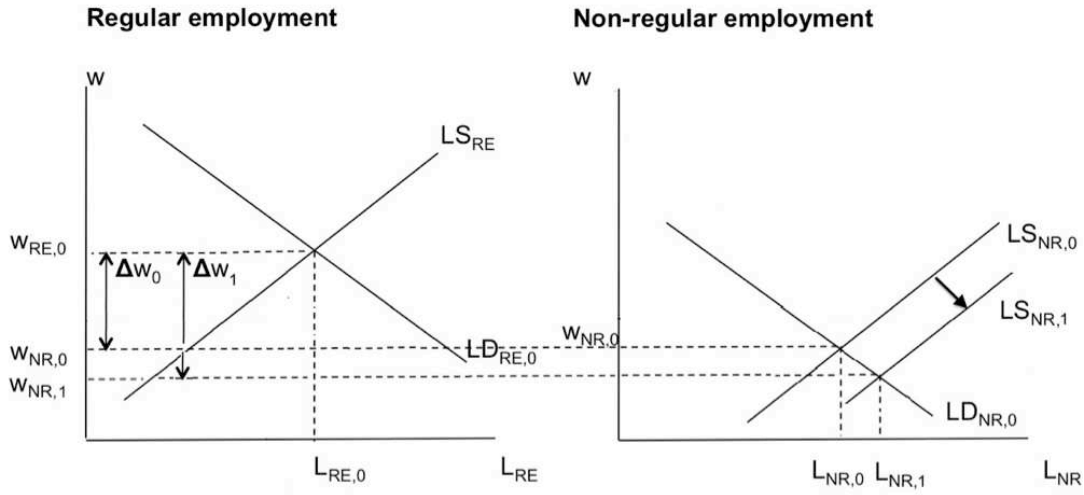
In the case of a demand shift away from regular and towards non-regular employment, microeconomic reasoning suggests that prices for substitutes will converge toward the cheaper alternative. Below, Figure 2b applies this reasoning given non-elastic labour supply in the two segments. As becomes evident from this graphic analysis, the initial wage gap Δw_0 is expected to decrease; i.e., $\Delta w_1 < w_0$.

Figure 2b: Convergence of wages due to demand shift in the labour market



Next, we sketch the effect on wages to be expected from a shift in labour supply, i.e., the effect on wages that should be expected from a sudden increase in labour supply (e.g., through the need to supplement household income). Figure 2c applies this reasoning given non-elastic labour demand. As becomes evident from the graphic analysis, the initial wage gap Δw_0 is expected to increase in this case; i.e., $\Delta w_1 > w_0$.

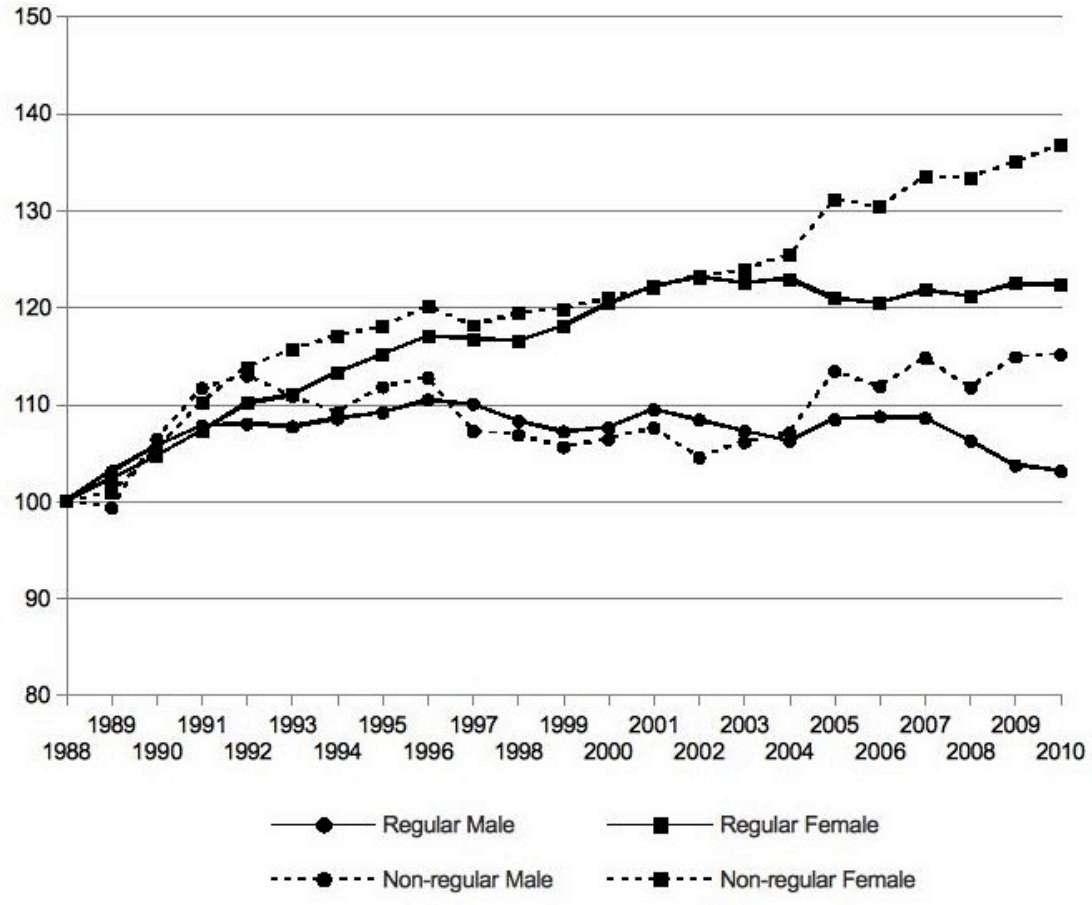
Figure 2c: Divergence of wages due to supply shock in the labour market



In order to test the effects illustrated in Table 2b and c, we analyse the data on real wages earned by men and women in standard and non-standard employment between $t_1 = 1988$ and $t_2 = 2010$. We use data from government statistics obtained through the *Basic Survey on Wage Structure* (MHLW 2012b). Wages for regular employees include bonuses, but exclude overtime payment; for non-regular employees we have used

hourly wages. We index[8] all wages to 1988 for the 2x2 matrix that results from separating men from women and standard from non-standard employment and plot the results in Figure 3.

Figure 3: Wage development standard vs. non-standard employment, male vs. female, age cohorts 20-64 (1988-2010, 1988=100)

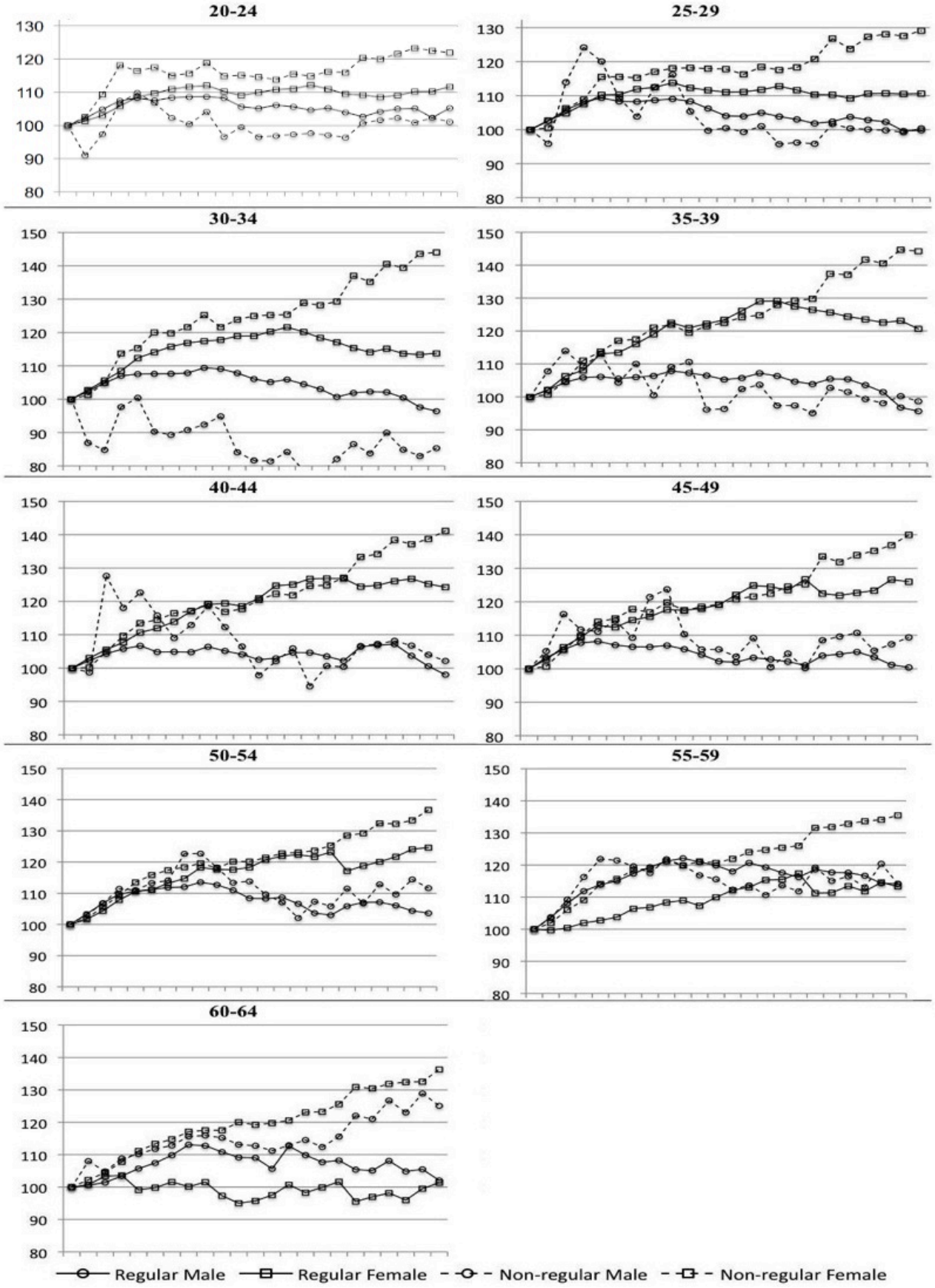


Source: Own calculations based on MHLW (2012b).

Two observations are most striking: First, increases in real wages of non-regular employees were equal to or larger than those of regular employees for both men and women. We can thus confirm the theoretical prediction sketched in Figure 2b for a demand shift from regular to non-regular employment. It also becomes obvious that this shift in demand effectively was stronger than the supply effect implied by the tax incentives that Japanese lawmakers tied to part-time employment, and thus to female non-regular employment. Second, the narrowing of wage gaps was particularly pronounced in the case of female non-standard employment, where certain age groups saw very strong increases (all groups between 30 and 49 at +40% or more) (Figure 4).

[8] In comparing the development of prices (wages as prices of labour) over time, indexing to a specific base year helps to identify diverging developments. Commonly, base values are set to 100 as changes during the observation period can be read as percentages.

Figure 4: Wage development: standard vs. non-standard employment, male vs. female, by age cohorts (1988-2010, 1988=100)



Source: Own calculations based on MHLW (2012b).

With this as background, we can discern that two frequently deplored wage gaps have been narrowing significantly in Japan since the late 1980s. First, the male vs. female divide: Young women have made further inroads into the Japanese labour market and have not only increased their share in terms of standard employment, but also in terms of real wages. And second, the standard vs. non-standard divide: While a significant wage gap continues to exist between regular and non-regular employees, this gap has sharply narrowed. Our findings also bound well with the strongly positive wage elasticity of substitution between regular and non-regular employment estimated by Hayami and Matsuura (2001) for the time span between 1982 and 1997. In light of the significant employment expansion that we evidenced in section 3, we understand that much of the rise in non-regular employment can be explained as the positive response of the labour force to increased demand for and to corresponding wage increases in non-standard employment.

Enlarging analytical scope to also include the intergenerational dimension, we find no significant evidence for a trend toward more intergenerational inequality (Figure 4). What is more, our findings on the first two dimensions extend to virtually all age cohorts. Closing wage gaps between regular and non-regular employment can be found in all age groups with the sole exception of men between 30 and 34; also, increases in female wages have been equal to or markedly larger than those of their male peers across all age cohorts.

5. Concluding remarks

We have assessed the state of the Japanese economy between 1988 and 2010 by taking a fresh analytical look at its labour market in an aggregate perspective. Our study was motivated by two observations. First, the ongoing discussion both in academia and public forums seems to have lacked a solid basis encompassing the many individual findings obtained from qualitative and quantitative studies on particular aspects of the labour market. Second, no study has provided answers to three questions that are key to an overall assessment of labour market performance. The first of these questions was whether regular employment was replaced by non-regular employment on an aggregate level in general, and at the expense of younger generations in particular. Second, we wanted to know how today's labour market outcomes compare to the heydays of the Japanese economy, i.e., to the late 1980s, in terms of absolute numbers of employees. Finally, it was imperative to know whether wage gaps between men and women as well as regular and non-regular employees have increased, stayed the same, or shrunk. This last question was key to determining whether the increase in non-regular employment was predominantly due to a shift in labour supply (employees) or due to a shift in labour demand (employers).

Our findings strongly indicate that the label "lost decade(s)" cannot be corroborated. From our quantitative analyses we find no evidence of any hollowing out of the Japanese employment system. Contrary to both public perception and many research opinions, we find that the Japanese economy as a whole has seen highly stable employment conditions in a long-term perspective. Our main results can be summarized as follows.

First, between 1988 and 2010, a total of 8.5 million new jobs were created for those aged 15-64, including 0.1 million in regular employment. Thus, on an aggregate basis, standard employment was not subject to replacement by non-standard employment. Naturally, this finding does not deny individual cases

documented for specific industries, or, the existence of individual firms where regular employment was effectively replaced by non-regular employment (as evidenced, e.g., in Ono 2001, Miyamoto and Nakata 2002).

Second, we find a strong increase in employment ratios of the active population for both sexes during the same period. Thus, the Japanese labour market has accommodated an increasing share of the population in an economy that has been growing only slowly since 1991. In order to assess the Japanese labour market in terms of absorptive capacity, we calculated how many jobs would have had to be created if the 1988 employment ratios of both sexes had stayed constant, and compared this number to the actual number of newly created jobs. We find that between 1988 and 2010, Japanese businesses created 10.1 million more jobs than were to be expected given the 1988 structural parameters of the labour market (participation rates and shares of regular vs. non-regular employment); what is more, 1.4 million of this unexpected increase were jobs in regular employment.

Third, we find that the share of regular employees relative to the active population aged 15-64 remained constant. This also holds for an analysis by age cohorts, but with two exceptions: (i) In the age cohort 15-24 for both sexes, we find a marked increase in the share of non-standard employment. This increase, however, can almost entirely be explained by increasing time spent in education associated with part-time jobs. (ii) For men in the age cohort 25-34, we confirm the frequently reported decrease in the share of regular jobs (e.g., Cook 2013). However, this decline of about 10pp over the last 20 years is almost entirely compensated for by a corresponding increase in female regular employment. Thus, in our view, this finding suggests that Japanese young women have, at least from a quantitative perspective, made substantial inroads into the Japanese labour market.

Fourth, and most significantly, women have succeeded in securing 400,000 additional jobs in standard employment. With the net increase at only 100,000 this "female success" came at the expense of male standard employment. In spite of this promising development, these quantitative successes do not make up for the many remaining gender issues of a more qualitative nature in the Japanese workplace (compare Kim 2008).

Fifth, our analysis of real wage development further confirms female labour market achievement. During the observation period female real wages have seen stronger increases than those of men across all age-cohorts (20-64) for non-standard employment and for all cohorts up to 55 in standard employment (wage gains were about equal for men and women aged 55+ in standard employment).

Sixth, our wage analysis further provides evidence that the wage gap between non-standard and standard employment narrowed significantly during the observation period, thus confirming the predictions of micro-economic theory as to the effects of a demand shift from standard to non-standard employment. In other words, the increase in non-regular employment was predominantly due to an increase in labour demand by employers.

In light of these normatively positive findings, the question arises why popular and academic discourse overwhelmingly share a negative perspective on labour market developments. While such inquiry certainly deserves dedicated research efforts with an appropriate methodology (e.g., Blind 2014), we already may

suggest some potential lines of explanation here.

First, it could be argued that a worsening of the Japanese labour market resonates well with the new societal model of Japan as a divided society *(kakusa shakai;* Tachibanaki 1998) that has come to replace the previously prevailing general middle-class society model (*sōchūryū shakai*). In order for a societal model to be dominant, however, it does not necessarily have to reflect the actual social structures. In fact, empirical studies fail to support either of these two societal models (Chiavacci 2008). Rather, in order to attain and retain a dominant position, a model needs to connect to the mainstream perception. It then functions as a frame through which everyday experiences are assessed and has a crucial impact on social actors by shaping their perspective. It is important to note that the establishment of particular societal models is also contingent upon ongoing political struggle. The dominance of a new societal model of inequality may thus explain why both popular and academic discourse tend to largely ignore any counter-evidence, such as absolute employment numbers, or the increase in female and student labour market participation, which can mainly be attributed to a labour market pull, as we have shown.

A similar bias can be observed with regards to household incomes. Both popular and academic discourse reiterate the notion that inequality between household incomes has been widening in Japan and take this as (further) proof that the Japanese society has turned into a "gap society" (*kakusa shakai*). Most accounts, however, make no reference to the fact that the observed increase in income inequality can actually be attributed to two factors: population aging and changes in household structures (compare Ōtake 2005).

An additional line of explanation may be derived from what macro economists refer to as 'adaptive expectations' (Owen and Honkapohja 2001). In contrast to the received model of rational expectations that are seen always to reflect the current state of an economic system, the formation of 'adaptive expectations' imply a significant time lag. As Kamada and Muto remark, concepts of rational expectations "fail to deal with changes in long-run equilibrium" (2000: 23). This would explain why evaluations of labour market performance still take all-time highs such as 1997 as their reference[9].

As a side note, in the case of female labour market advancement or, better, its lack of appraisal, the conservative establishment has actually sided with its political enemy. The ongoing strong prevalence of the societal ideal of a male breadwinner in certain layers of Japanese society arguably precludes a positive appraisal of young women increasingly finding their way into standard employment, especially where this happens at the expense of men. This comes in spite of the fact that double income couples outnumbered households with the "male breadwinner"-model as far back as the 1980s (Shire 2008). Recently, current prime minister Abe Shinzō has made a plea to increase the labour market participation of women as part of his Abenomics. While arguably not more than a "second-worst" way of avoiding large-scale labour immigration, it will be interesting to observe whether Abe's attempts to put "woman power" to work and make Japan "a place where women shine" will eventually result in a positive appraisal of female labour market advancement.

9 Although land and stock prices had already started to fall in 1990, firms, trapped in their planning routines and anticipating that high growth rates would eventually return, continued to hire increasing numbers of regular employees up to 1997 (MHLW 2012a).

What do these findings imply for future labour market prospects in Japan? While still a rather unreliable predictor of the future, the past remains the best available alternative. With this in mind, our findings suggest that Japanese employers will likely continue their long-term path toward harmonious industrial relations (compare Lottanti von Mandach 2014) in keeping implicit lifetime employment promises whenever possible. From that, we may derive (1) that labour productivity gains in Japan will continue to be low and mainly driven by technological improvements and (2) that labour market demand will stay strong. However, with the significant past increases in female labour market participation documented in this paper, maintaining the current pace will require ever stronger efforts. It remains to be seen whether the Abe government will succeed in delivering on its promise.

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Annex 1: Share of standard employment by age cohorts, 1988-2009

	Age cohort 15 to 24			Age cohort 25 to 34			Age cohort 35 to 44			Age cohort 45 to 54			Age cohort 55 to 64		
	% of age cohort employed as regular employees	% of male age cohort employed as regular employees	% of female age cohort employed as regular employees	% of age cohort employed as regular employees	% of male age cohort employed as regular employees	% of female age cohort employed as regular employees	% of age cohort employed as regular employees	% of male age cohort employed as regular employees	% of female age cohort employed as regular employees	% of age cohort employed as regular employees	% of male age cohort employed as regular employees	% of female age cohort employed as regular employees	% of age cohort employed as regular employees	% of male age cohort employed as regular employees	% of female age cohort employed as regular employees
1988	27.9%	26.3%	29.4%	56.7%	82.2%	30.3%	50.3%	76.8%	23.6%	47.4%	70.2%	25.0%	27.4%	42.8%	13.1%
1989	28.0%	26.5%	29.4%	57.1%	81.3%	32.3%	51.5%	78.5%	24.4%	48.6%	71.2%	26.4%	27.8%	43.6%	13.1%
1990	28.3%	27.8%	29.0%	57.5%	82.3%	32.2%	51.0%	77.2%	24.7%	50.2%	73.4%	27.5%	28.3%	44.3%	13.1%
1991	29.0%	27.5%	30.5%	60.9%	84.9%	36.2%	52.9%	79.4%	26.1%	50.9%	75.1%	27.1%	31.1%	48.1%	15.1%
1992	31.2%	30.6%	31.8%	59.0%	83.1%	34.2%	55.1%	82.8%	27.0%	50.8%	75.1%	26.8%	31.9%	48.7%	16.2%
1993	30.2%	30.7%	29.7%	60.0%	83.8%	35.6%	55.6%	82.8%	28.1%	51.1%	75.1%	27.1%	34.3%	52.3%	17.2%
1994	31.2%	31.3%	31.0%	60.4%	84.0%	36.2%	55.9%	83.7%	27.7%	51.2%	75.2%	27.2%	34.1%	52.4%	16.8%
1995	30.0%	30.8%	29.3%	60.8%	83.6%	37.6%	55.0%	82.3%	27.5%	51.8%	75.8%	27.8%	33.7%	51.1%	17.2%
1996	29.8%	30.9%	28.7%	60.7%	82.4%	38.3%	55.8%	83.0%	28.3%	52.3%	76.6%	28.1%	34.1%	52.1%	17.0%
1997	28.1%	29.1%	27.1%	60.7%	81.8%	39.0%	56.1%	83.5%	28.3%	53.4%	78.1%	28.8%	34.6%	52.4%	17.7%
1998	26.8%	27.3%	26.2%	60.4%	81.2%	38.9%	55.6%	82.8%	28.0%	53.5%	78.3%	28.7%	34.0%	52.3%	16.8%
1999	25.0%	25.7%	24.3%	58.0%	79.1%	36.4%	54.5%	82.6%	26.1%	52.4%	77.8%	27.1%	33.9%	51.7%	17.1%
2000	23.0%	22.9%	23.1%	59.3%	80.9%	37.2%	53.4%	81.5%	24.9%	51.3%	75.3%	27.2%	33.6%	52.1%	16.0%
2001	22.1%	22.0%	22.1%	58.1%	79.0%	36.7%	55.2%	82.8%	27.2%	51.2%	75.1%	27.2%	33.1%	51.3%	15.8%
2002	22.6%	23.8%	21.3%	56.8%	76.4%	36.7%	53.5%	79.3%	27.2%	50.7%	74.0%	27.5%	31.6%	47.7%	16.3%
2003	21.5%	22.1%	20.7%	56.4%	75.5%	36.7%	53.3%	79.5%	26.8%	50.6%	74.3%	27.1%	31.3%	47.6%	15.8%
2004	21.3%	22.1%	20.5%	56.2%	75.2%	36.6%	52.7%	79.1%	26.3%	51.4%	74.7%	27.8%	31.5%	47.9%	16.0%
2005	20.9%	21.4%	20.4%	56.2%	75.0%	36.7%	53.1%	78.5%	27.2%	50.9%	74.4%	27.4%	31.6%	47.3%	16.4%
2006	21.9%	22.3%	21.4%	56.9%	75.9%	37.2%	52.9%	78.3%	27.0%	51.5%	75.1%	27.9%	32.5%	48.6%	17.0%
2007	21.7%	22.5%	20.7%	56.2%	74.8%	36.8%	54.2%	79.5%	28.3%	52.4%	76.2%	28.5%	34.0%	51.0%	17.6%
2008	21.7%	22.1%	21.5%	56.4%	74.1%	38.0%	53.4%	78.7%	27.8%	52.2%	75.7%	28.6%	33.3%	50.0%	17.0%
2009	21.4%	21.9%	20.9%	56.1%	73.2%	38.4%	53.7%	78.5%	28.5%	52.4%	75.8%	29.0%	33.2%	49.0%	17.9%
	-6.46%	***-4.40%***	***-8.50%***	*-0.59%*	*-9.00%*	8.03%	3.42%	1.69%	4.84%	4.95%	5.66%	3.95%	5.72%	6.18%	4.79%

Source: Own calculations based on data from the Statistics Bureau Japan, Historical Statistics, Chapter 2 (Population and Households), Table 2-3, and MHLW (2012a)